

CLAIMS

- 1 1. A telescope system, comprising:
 - 2 a telescope having a tube, a prime focusing mirror, and a secondary mirror on the
 - 3 optical axis of the telescope to form a real image behind the telescope, the prime focusing
 - 4 mirror located at a first end of the tube;
 - 5 a fork mount, the fork mount having a base and a first arm extending from a first end
 - 6 of the base and a second arm extending from a second end of the base;
 - 7 an axle to rotate the fork mount along a first axis perpendicular to the base and
 - 8 parallel to the arms, the base rotating about a location midway between the two arms, to
 - 9 cause the fork to rotate in right ascension when the axis points toward a celestial pole;
 - 10 rotatable attachments to permit rotating the tube in a plane midway between the two
 - 11 arms of the fork mount, the plane substantially perpendicular to the base of the fork mount, to
 - 12 cause the tube to rotate in declination when the axis points toward a celestial pole;
 - 13 a 45 degree angle reflector to deflect the optical axis of the telescope by 90 degrees so
 - 14 that the real image is formed on a line perpendicular to the optical axis of the telescope tube,
 - 15 the 45 degree angle reflector attaching to external threads at the first end of the telescope
 - 16 tube;

17 a cylindrical coupling member mating at a first end with a downstream opening of the
18 45 degree angle deflector, and a threaded coupling at a downstream end of the cylindrical
19 coupling;
20 a field adjuster, the field adjuster attached to the threaded coupling of the cylindrical
21 coupling; and
22 a CCD camera attached to a downstream end of the field adjuster, wherein the field
23 adjuster and the CCD camera clear the base of the fork mount when the telescope is in the 90
24 degree declination position.

1 2. A telescope system as in claim 1, further comprising:
2 a smooth internal mating surface in the downstream end of the 45 degree angle
3 reflector;
4 a smooth external mating surface in the first end of the cylindrical coupling member,
5 the smooth external mating surface fitting into the smooth internal mating surface of the 45
6 degree angle reflector.

1 3. A telescope system as in claim 2, further comprising:
2 a grove in the cylindrical coupling member;
3 a setscrew in the 45 degree angle reflector, the setscrew mating with the grove to hold
4 the cylindrical coupling member securely in place.

1 4. A telescope, comprising:

2 a tube, a prime focusing mirror, and a secondary mirror to form a real image behind
3 the telescope;

4 a fork mount having a base and a two arms extending to hold the telescope tube;

5 a 45 degree angle reflector deflects light from the telescope by 90 degrees, the 45
6 degree angle reflector attaching to external threads at an end of the telescope tube;

7 a cylindrical coupling member mated at a first end with a downstream opening of the
8 45 degree angle deflector, and having a threaded coupling at a downstream end of the
9 cylindrical coupling; and

10 a CCD camera attached to a downstream end of the cylindrical coupling member, so
11 that the CCD camera clears the base of the fork mount when the telescope is in the 90 degree
12 declination position.

1 5. The telescope as in claim 4, further comprising:

2 a field adjuster, the field adjuster attached to the threaded coupling of the cylindrical
3 coupling member at a first end, and the field adjuster attached at a second end to the CCD
4 camera.

1 6. A telescope system as in claim 5, further comprising:

2 a smooth internal mating surface in the downstream end of the 45 degree angle
3 reflector;
4 a smooth external mating surface in the first end of the cylindrical coupling member,
5 the smooth external mating surface fitting into the smooth internal mating surface of the 45
6 degree angle reflector.

1 7. A telescope system as in claim 6, further comprising:
2 a grove in the cylindrical coupling member;
3 a setscrew in the 45 degree angle reflector, the setscrew mating with the grove to hold
4 the cylindrical coupling member securely in place.

1 8. A telescope system, comprising:
2 a telescope having a tube, a prime focusing mirror, and a secondary mirror on the
3 optical axis of the telescope to form a real image behind the telescope, the prime focusing
4 mirror located at a first end of the tube;
5 a fork mount, the fork mount having a base and a first arm extending from a first end
6 of the base and a second arm extending from a second end of the base;
7 an axle to rotate the fork mount along a first axis perpendicular to the base and
8 parallel to the arms, the base rotating about a location midway between the two arms, to
9 cause the fork to rotate in right ascension when the axis points toward a celestial pole;

10 rotatable attachments to permit rotating the tube in a plane midway between the two
11 arms of the fork mount, the plane substantially perpendicular to the base of the fork mount, to
12 cause the tube to rotate in declination when the axis points toward a celestial pole;
13 a 45 degree angle reflector to deflect the optical axis of the telescope by 90 degrees so
14 that the real image is formed on a line perpendicular to the optical axis of the telescope tube,
15 the 45 degree angle reflector attaching to external threads at the first end of the telescope
16 tube, and a smooth internal mating surface in the downstream end of the 45 degree angle
17 reflector;
18 a cylindrical coupling member mating at a first end with a downstream opening of the
19 45 degree angle deflector, and a threaded coupling at a downstream end of the cylindrical
20 coupling, a smooth external mating surface in the first end of the cylindrical coupling
21 member, the smooth external mating surface fitting into the smooth internal mating surface
22 of the 45 degree angle reflector, and a groove in the cylindrical coupling member and a
23 setscrew in the 45 degree angle reflector, the setscrew mating with the groove to hold the
24 cylindrical coupling member securely in place.
25 a field adjuster, the field adjuster attached to the threaded coupling of the cylindrical
26 coupling; and
27 a CCD camera attached to a downstream end of the field adjuster, wherein the field
28 adjuster and the CCD camera clear the base of the fork mount when the telescope is in the 90
29 degree declination position.